

Figure 1. Amino acid sequence alignment in human IgG isotypes and their variants.

Human IgG Isotype	Amino Acid Position					
	228.....234	235	236	237.....330	331	
G1	Pro.....Leu	Leu	Gly	Gly.....Ala	Pro	
G2	Pro.....Val	Ala	Gly.....Ala	Pro	
G4	Ser.....Phe	Leu	Gly	Gly.....Ser	Ser	
G1 variant	Pro..... Val	Ala	Gly	Gly.....Ala	Ser	
G2 variant	Pro.....Val	Ala	Gly.....Ala	Ser	
G4 variant	ProPhe	Ala	Gly	Gly.....Ser	Ser	

Figure 2A. DNA and deduced amino acid sequences of HuEPO-L-vFc₂

aag ctt ggc gcg gag atg ggg gtg cac gaa tgt cct gcc tgg ctg tgg ctt ctg tcc 60
 HindIII M G V H E C P A W L W L L L S
 -27
 ctg ctg tgc cct cct ctg ggc ctc cca gtc ctg ggc gcc cca cca cgc ctc atc tgt gac 120
 L L S L P L G L P V L L G A A P P R L I C D
 -10
 agc cga gtc ctg gag agg tac ctc ttg gag gcc aag gag gcc gag aat atc acg acg ggc 180
 S R V L E R Y L L E A K E A E N I T T G
 10
 tgt gct gaa cac tgc agc ttg aat gag aat atc act gtc cca gcc acc aaa gtt aat ttc 240
 C A E H C S L N E N I T V P D T K V N F
 30
 tat gcc tgg aag agg atg gag gtc ggg cag cag gcc gta gaa gtc tgg cag ggc ctg gcc 300
 Y A W K R M E V G Q Q A V E V W Q G L A
 50
 ctg ctg tgc gaa gct gtc ctg cgg ggc cag gcc ctg ttg gtc aac tct tcc cag cgg tgg 360
 L L S E A V L R G Q A L L V N S S Q P W
 70
 gag ccc ctg cag ctg cat gtg gat aaa gcc gtc agt ggc ctt cgc agc ctc acc act ctg 420
 E P L Q L H V D K A V S G L R S L T L
 90
 ctt cgg gct ctg gga gcc cag aag gaa gcc atc tcc cct cca gat gcg gcc tca gct gct 480
 L R A L G A Q K E A I S P P D A A S A A
 110
 cca ctc cga aca atc act gct gac act ttc cgc aaa ctc ttc cga gtc tac tcc aat ttc 540
 P L R T I T A D T F R K L F R V Y S N F
 130
 ctc cgg gga aag ctg aag ctg tac aca ggg gag gcc tgc agg aca ggg gac gga tcc ggt 600
 L R G K L K L Y T G E A C R T G D G S G
 150
 ggc ggt tcc ggt gga ggc gga agc ggc ggt gga gga tca gag cgc aaa tgt tgt gtc gag 660
 G G S G G G S G G G G G S E R K C C V E
 170
 180

ATTORNEY DOCKET NO. 02SUN2001

tgc cca ccg tgc cca gca cca cct gtg gca gga ccg tca gtc ttc ctc ttc cca aaa 720
 C P C P A P A G 190
 ccc aag gac acc ctc atg atc tcc cgg acc cct gag gtc acg tgc gtg gtg gac gac 780
 P K D T L M I S R T P E V T C V V D V
 210
 agc cac gaa gac ccc gag gtc cag ttc aac tgg tac gtg gac ggc gtg gag gac cat aat 840
 S H E D P E V Q F N W Y V D G V E V H N
 230
 gcc aag aca aag cca cgg gag gag cag ttc aac agc acg ttc cgt gtg gtc agc gtc ctc 900
 A K T K P R E E Q F N S T F R V V S V L
 250
 acc gtt gtg cac cag gac tgg ctg aac ggc aag gag tac aag tgc aag gtc tcc aac aaa 960
 T V V H Q D W L N G K E Y K C K V S N K
 270
 ggc ctc cca gcc tcc atc gag aaa acc atc tcc aaa acc aaa ggc cag ccc cga gaa cca 1020
 G L P A S I E K T I S K T K K G Q P R E P
 290
 cag gtg tac acc ctg ccc cca tcc cgg gag gag atg acc aag aac cag gtc agc ctg acc 1080
 Q V Y T L P P S R E E M T K N Q V S L T
 310
 tgc ctg gtc aaa ggc ttc tac ccc agc gac atc gcc gtg gag tgg gag agc aat ggg cag 1140
 C L V K G F Y P S D I A V E W E S N G Q
 330
 ccg gag aac aac tac aag acc aca cct ccc atg atg gac tcc gac ggc tcc ttc ttc ctc 1200
 P E N N Y K T T P P M L D S S D G S F F L
 350
 tac agc aag ctc acc gtg gac aag agc agg tgg cag cag ggc aac gtc ttc tca tgc tcc 1260
 Y S K L T V D K S R W Q Q G N V F S C S
 370
 gtg atg cat gag gct ctg cac aac cac tac acg gag aag agc ctc tcc ctg tct ccg ggt 1320
 V M H E A L H N H Y T Q K S L S L S P G
 390
 aaa tga gaa ttc
 K EcoRI
 409

Figure 2B. DNA and deduced amino acid sequences of HuEPO-L-vFc_{γ4}

aag ctt ggc gcg gag atg ggg gtg cac gaa tgt cct gcc tgg ctg tgg ctt ctc ctg tcc 60
 HindIII M G V H E C P A W L W L L S
 -27 -20
 ctg ctg tgc ctc cct ctg ggc ctc cca gtc ctg ggc gcc cca cca cgc ctc atc tgt gac 120
 L L S L P L G L P V L G A P P R L I C D
 -10 -1 1
 agc cga gtc ctg gag agg tac ctc ttg gag gcc aag gag gcc gag aat atc acg acg ggc 180
 S R V L E R Y L L E A K E A E N I T G
 10 20
 tgt gct gaa cac tgc agc ttg aat gag aat atc act gtc cca gac acc aaa gtt aat ttc 240
 C A E H C S L N E N I T V P D T K V N F
 30 40
 tat gcc tgg aag agg atg gag gtc ggg cag cag gcc gta gaa gtc tgg cag ggc ctg gcc 300
 Y A W K R M E V G Q Q A V E V W Q G L A
 50 60
 ctg ctg tgc gaa gct gtc ctg cgg ggc cag gcc ctg ttg gtc aac tct tcc cag ccg tgg 360
 L L S E A V L R G Q A L L V N S S Q P W
 70 80
 gag ccc ctg cag ctg cat gtg gat aaa gcc gtc agt ggc ctt cgc agc ctc acc act ctg 420
 E P L Q L H V D K A V S G L R S L T L
 90 100
 ctt cgg gct ctg gga gcc cag aag gaa gcc atc tcc cct cca gat gcg gcc tca gct gct 480
 L R A L G A Q K E A I S P P D A A S A A
 110 120
 cca ctc cga aca atc act gct gac act ttc cgc aaa ctc ttc cga gtc tac tcc aat ttc 540
 P L R T I T A D T F R K L F R V Y S N F
 130 140
 ctc cgg gga aag ctg aag ctg tac aca ggg gag gcc tgc agg aca ggg gac gga tcc ggt 600
 L R G K L K L Y T G E A C R T G D G S G
 150 160
 ggc ggt tcc ggt gga ggc gga agc ggc ggt gga gga tca gag tcc aaa tat ggt ccc cca 660
 G G S G G G G G G G G G G S E S K Y G P P
 170 180

du
C4

ATTORNEY DOCKET NO. 02SUN2001

tgc cca cca tgc cca gca cct gag ttc gcg ggg gga cca tca gtc ttc ctg ttc ccc cca 720
C P P C P A P E F A 200
190
aaa ccc aag gac act ctc atg atc tcc cgg acc cct gag gtc acg tgc gtg gtg gac 780
K P K D T L M I S R T P E V T C V V D
210
gtg agc cag gaa gac ccc gag gtc cag ttc aac tgg tac gtg gat ggc gtg gag gtg cat 840
V S Q E D P E V Q F N W Y V D G V E V H
230
aat gcc aag aca aag ccg cgg gag gag cag ttc aac agc acg tac cgt gtg gtc agc gtc 900
N A K T K P R E E Q F N S T Y R V S V
250
ctc acc gtc ctg cac cag gac tgg ctg aac ggc aag gag tac aag tgc aag gtc tcc aac 960
L T V L H Q D W L N G K E Y K C K V S N
270
aaa ggc ctc ccg tcc atc gag aaa acc atc tcc aaa gcc aaa ggc cag ccc cga gag 1020
K G L P S S I E K T I S K A K G Q P R E
290
cca cag gtg tac acc ctg ccc cca tcc cag gag atg acc aag aac cag gtc agc ctg 1080
P Q V Y T L P P S Q E E M T K N Q V S L
310
acc tgc ctg gtc aaa ggc ttc tac ccc agc gag atc gcc gtg gag tgg gag agc aat ggg 1140
T C L V K G F Y P S D I A V E W E S N G
330
cag ccg gag aac aac tac aag acc acg cct ccc gtg ctg gac tcc gac ggc tcc ttc ttc 1200
Q P E N N Y K T T P P V L D S D G S F F
350
ctc tag agc agg cta acc gtg gac aag agc agg tgg cag gag ggg aat gtc ttc tca tgc 1260
L Y S R L T V D K S R W Q E G N V F S C
370
tcc gtg atg cat gag gct ctg cac aac cac tac aca cag aag agc ctc tcc ctg tct ctg 1320
S V M H E A L H N H Y T Q K S L S L S L
390
ggc aaa tga gaa ttc 1335
G K EcoRI
410

Figure 2C. DNA and deduced amino acid sequences of HuEPO-L-vFc_{γ1}

aag ctt_ggc gcg gag atg ggg gtg cac gaa tgt cct gcc tgg ctg tgg ctt ctc ctg tcc 60
 HindIII M G V H E C P A W L L L L S
 -27
 ctg ctg tgc ctc cct ctg ggc ctc cca gtc ctg ggc gcc cca cga cgc ctc atc tgt gac 120
 L L S L P L G L P V L G A P P R L I C D
 -10
 agc cga gtc ctg gag agg tac ctc ttg gag gcc aag gag gcc gag aat atc acg acg ggc 180
 S R V L E R Y L L E A K E A E N I T T G
 10
 tgt gct gaa cac tgc agc ttg aat gag aat atc act gtc cca gac acc aaa gtt aat ttc 240
 C A E H C S L N E N I T V P D T K V N F
 30
 tat gcc tgg aag atg atg gag gtc ggg gag cag ggc gta gaa gtc ggc cag ggc ctg gcc 300
 Y A W K R M E V G Q Q A V E V W Q G L A
 50
 ctg ctg tgc gaa gct gtc ctg cgg ggc cag gcc ctg ttg gtc aac tct tcc cag ccg tgg 360
 L L S E A V L R G Q A L L V N S S Q P W
 70
 gag ccc ctg cag ctg cat gtc gat aaa gcc gtc agt ggc ctt cgc agc ctc acc act ctg 420
 E P L Q L H V D K A V S G L R S L T T L
 90
 ctt cgg gct ctg gga gcc cag aag gaa gcc atc tcc cct cca gat gcg gcc tca gct gct 480
 L R A L G A Q K E A I S P P D A A S A A
 110
 cca ctc cga aca atc act gct gac act ttc cgc aaa ctc ttc cga gtc tac tcc aat ttc 540
 P L R T I T A D T F R K L F R V Y S N F
 130
 ctg cgg gga aag ctg aag ctg tac aca ggg gag gcc tgc agg aca ggg gac gga tcc ggt 600
 L R G K L K L Y T G E A C R T G D G S G
 150
 ggc ggt tcc ggt gga ggc gga agc ggc ggt gga gga tca gac aaa act cac aca tgc cca 660
 G S G G G G G G G G G G S D K T H T C P
 170

ATTORNEY DOCKET NO. 02SUN2001

ccg tgc cca gca cct gaa **g**tc **gcg** ggg gga ccg tca gtc ttc ctc ttc ccc cca aaa ccc 720
 P C P A P E **V** **A** 200
 aag gac acc ctc atg atc tcc cgg aca cct gag gtc aca tgc gtg gtg gac gtg agc 780
 K D T L M I S R T P E V T C V V D V S
 210
 cac gaa gac cct gag gtc aag ttc aac tgg tac gtg gac ggc gtg gag gtg cat aat gcc 840
 H E D P E V K F N W Y V D G V E V H N A
 230
 aag aca aag ccg ccg gag gag cag tac aac agc acg tac cgg gtg gtc agc gtc ctc acc 900
 K T K P R E Q Y N S T Y R V V S V L T
 250
 gtc ctg cac cag gac tgg ctg aat ggc aag gag tac aag tgc aag gtc tcc aac aaa gcc 960
 V L H Q D W L N G K E Y K C K V S N K A
 270
 ctc cca gcc **t**cc atc gag aaa acc atc tcc aaa gcc aaa ggg cag ccc cga gaa cca cag 1020
 L P A **s** I E K T I S K A K G Q P R E P Q
 290
 gtg tac acc ctg ccc cca tcc ccg gat gag ctg acc aag aac cag gtc agc ctg acc tgc 1080
 V Y T L P P S R D E L T K N Q V S L T C
 310
 ctg gtc aaa ggc ttc tat ccc agc gac atc gcc gtg gag tgg gag agc aat ggg cag ccg 1140
 L V K G F Y P S D I A V E W E S N G Q P
 330
 gag aac aac tac aag acc acg cct ccc gtg ctg gac tcc gac ggc tcc ttc ttc ctc tac 1200
 E N N Y K T P P V L D S D G S F F L Y
 350
 agc aag ctc acc gtg gac aag agc agg tgg cag cag ggg aac gtc ttc tca tgc tcc gtg 1260
 S K L T V D K S R W Q Q G N V F S C S V
 370
 atg cat gag gct ctg cac aac cac tac acg cag aag agc ctc tcc ctg tct ccg ggt aaa 1320
 M H E A L H N H Y T Q K S L S L S P G K
 390
 tga gaa ttc
 EcoRI